



Project: Weld County, CO NAD 83
Site: CVR 5-63-32_33 Pad
Well: CVR 5-63-32-6457B2B
Wellbore: OH
Design: OH

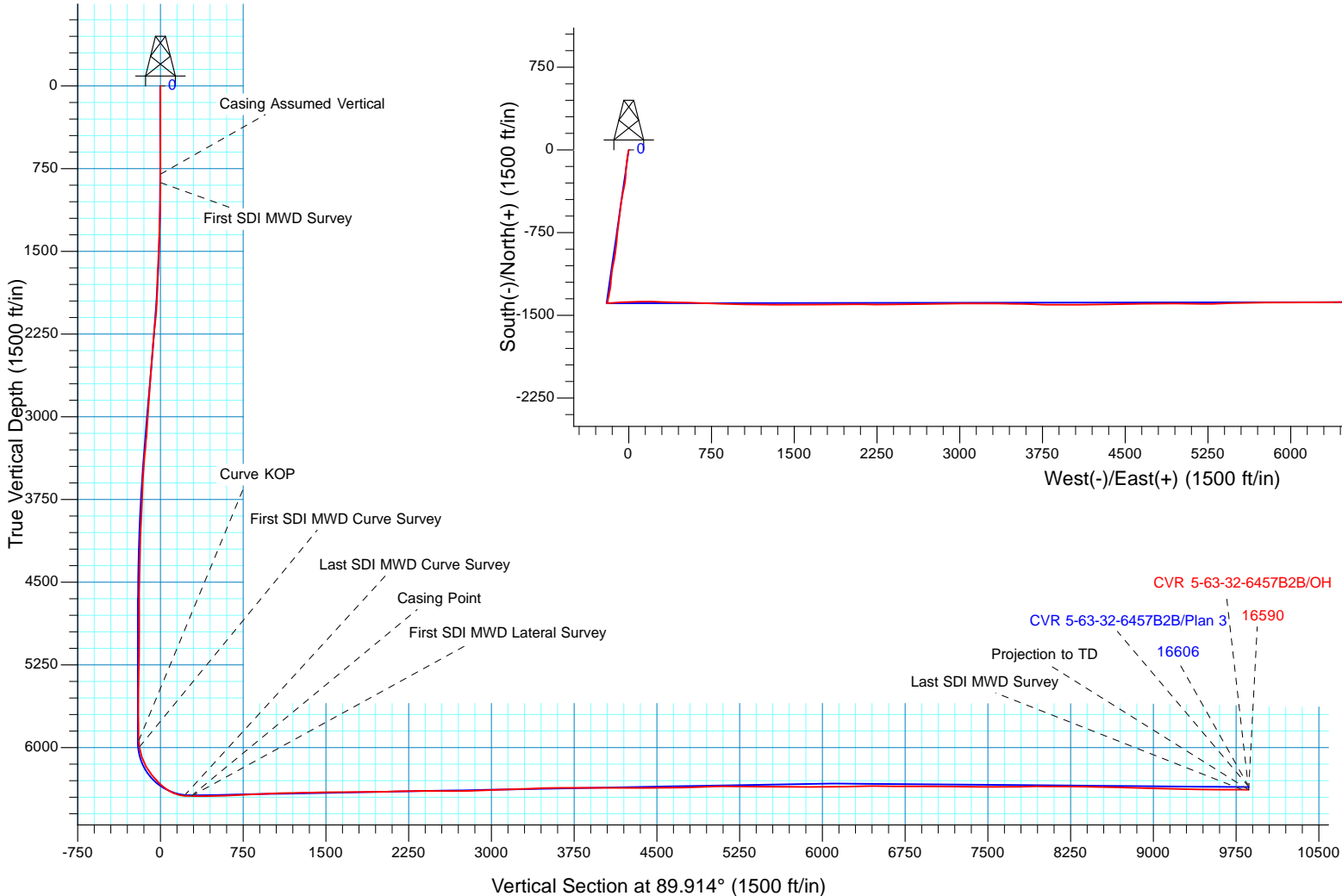


WELL DETAILS: CVR 5-63-32-6457B2B				
GL 4581' & KB 20' @ 4601.00ft (Savanna 802)				
4581.00				
Northing	Easting	Latitude	Longitude	
1372928.00	3287445.63	40° 21' 8.999 N	104° 28' 7.021 W	

Design: OH (CVR 5-63-32-6457B2B/OH)	
Created By: Seth Burstad	Date: 4-13-2017

PROJECT DETAILS: Weld County, CO NAD 83	
Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	Colorado Northern Zone
System Datum:	Mean Sea Level
Local North:	True

ANNOTATIONS							
TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Annotation
800.00	800.00	0.00	0.000	0.00	0.00	0.00	Casing Assumed Vertical
877.00	877.00	0.35	64.830	0.10	0.21	0.21	First SDI MWD Survey
5938.26	6241.00	3.90	90.388	-1390.00	-193.29	-195.37	Curve KOP
5993.92	6297.00	8.53	88.640	-1389.91	-187.23	-189.32	First SDI MWD Curve Survey
6437.13	6938.00	84.59	91.110	-1376.22	219.09	217.02	Last SDI MWD Curve Survey
6440.36	7000.00	89.44	93.445	-1378.68	280.93	278.86	Casing Point
6440.38	7002.00	89.60	93.520	-1378.81	282.93	280.86	First SDI MWD Lateral Survey
6381.94	16533.00	89.87	85.930	-1362.17	9810.24	9808.18	Last SDI MWD Survey
6382.21	16590.00	89.57	85.930	-1358.12	9867.10	9865.05	Projection to TD





Bill Barrett Corporation

Bill Barrett Corp.

Weld County, CO NAD 83

CVR 5-63-32_33 Pad

CVR 5-63-32-6457B2B

OH

Design: OH

Standard Survey Report

18 April, 2017



Scientific Drilling

www.scientificdrilling.com



Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well CVR 5-63-32-6457B2B
Project:	Weld County, CO NAD 83	TVD Reference:	GL 4581' & KB 20' @ 4601.00ft (Savanna 802)
Site:	CVR 5-63-32_33 Pad	MD Reference:	GL 4581' & KB 20' @ 4601.00ft (Savanna 802)
Well:	CVR 5-63-32-6457B2B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Casper District

Project	Weld County, CO NAD 83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	CVR 5-63-32_33 Pad, Site Center : CVR 5-63-32-4841B2				
Site Position:		Northing:	1,373,018.00 usft	Latitude:	40° 21' 9.889 N
From:	Lat/Long	Easting:	3,287,443.19 usft	Longitude:	104° 28' 7.039 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.67 °

Well	CVR 5-63-32-6457B2B, 1392' FSL 230' FWL Sec 32 T5N R63W					
Well Position	+N/-S	0.00 ft	Northing:	1,372,928.00 usft	Latitude:	40° 21' 8.999 N
	+E/-W	0.00 ft	Easting:	3,287,445.63 usft	Longitude:	104° 28' 7.021 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	4,581.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2016	10/17/2016	8.27	66.91	52,489

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	89.914	

Survey Program	Date	4/17/2017			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
800.00	6,938.00	Survey #1 - Intermediate (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1	
7,002.00	16,590.00	Survey #2 - Lateral (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.000	800.00	0.00	0.00	0.00	0.00	0.00	0.00	
Casing Assumed Vertical										
877.00	0.35	64.830	877.00	0.10	0.21	0.21	0.45	0.45	0.00	
First SDI MWD Survey										
968.00	2.20	188.310	967.98	-1.51	0.21	0.21	2.65	2.03	135.69	
1,059.00	3.78	193.670	1,058.85	-6.15	-0.75	-0.76	1.76	1.74	5.89	
1,150.00	6.68	194.730	1,149.46	-14.19	-2.80	-2.83	3.19	3.19	1.16	
1,240.00	9.76	189.540	1,238.53	-26.78	-5.40	-5.44	3.52	3.42	-5.77	

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well CVR 5-63-32-6457B2B
Project:	Weld County, CO NAD 83	TVD Reference:	GL 4581' & KB 20' @ 4601.00ft (Savanna 802)
Site:	CVR 5-63-32_33 Pad	MD Reference:	GL 4581' & KB 20' @ 4601.00ft (Savanna 802)
Well:	CVR 5-63-32-6457B2B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Casper District

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,332.00	11.87	189.890	1,328.89	-43.79	-8.32	-8.38	2.29	2.29	0.38
1,423.00	14.16	188.930	1,417.55	-64.01	-11.65	-11.75	2.53	2.52	-1.05
1,514.00	17.23	187.780	1,505.14	-88.36	-15.21	-15.34	3.39	3.37	-1.26
1,605.00	20.22	186.470	1,591.32	-117.35	-18.80	-18.98	3.32	3.29	-1.44
1,697.00	21.90	186.200	1,677.17	-150.21	-22.45	-22.67	1.83	1.83	-0.29
1,788.00	22.16	183.480	1,761.53	-184.21	-25.32	-25.60	1.16	0.29	-2.99
1,879.00	22.51	182.780	1,845.70	-218.74	-27.21	-27.54	0.48	0.38	-0.77
1,970.00	23.39	185.060	1,929.50	-254.13	-29.65	-30.03	1.37	0.97	2.51
2,062.00	24.62	187.430	2,013.54	-291.33	-33.74	-34.17	1.70	1.34	2.58
2,153.00	26.56	191.560	2,095.62	-330.06	-40.27	-40.76	2.90	2.13	4.54
2,244.00	28.14	192.880	2,176.44	-370.92	-49.13	-49.68	1.86	1.74	1.45
2,335.00	29.46	189.890	2,256.19	-413.89	-57.76	-58.38	2.15	1.45	-3.29
2,429.00	29.46	190.070	2,338.04	-459.42	-65.77	-66.46	0.09	0.00	0.19
2,524.00	29.90	187.170	2,420.58	-505.91	-72.81	-73.57	1.58	0.46	-3.05
2,619.00	29.81	186.820	2,502.97	-552.85	-78.57	-79.40	0.21	-0.09	-0.37
2,713.00	30.51	185.500	2,584.24	-599.81	-83.63	-84.53	1.03	0.74	-1.40
2,807.00	31.13	186.910	2,664.97	-647.68	-88.84	-89.81	1.01	0.66	1.50
2,901.00	31.57	188.930	2,745.25	-696.11	-95.58	-96.63	1.21	0.47	2.15
2,995.00	31.48	185.760	2,825.38	-744.84	-101.87	-102.98	1.77	-0.10	-3.37
3,090.00	31.66	184.530	2,906.32	-794.38	-106.32	-107.52	0.70	0.19	-1.29
3,184.00	31.04	186.640	2,986.60	-843.04	-111.08	-112.34	1.34	-0.66	2.24
3,278.00	30.07	187.080	3,067.55	-890.49	-116.78	-118.12	1.06	-1.03	0.47
3,372.00	28.67	186.730	3,149.46	-936.25	-122.33	-123.73	1.50	-1.49	-0.37
3,466.00	27.44	191.390	3,232.43	-979.88	-129.25	-130.72	2.67	-1.31	4.96
3,560.00	25.85	191.480	3,316.44	-1,021.20	-137.60	-139.14	1.69	-1.69	0.10
3,655.00	24.80	189.190	3,402.31	-1,061.17	-144.91	-146.50	1.51	-1.11	-2.41
3,749.00	24.27	189.630	3,487.82	-1,099.68	-151.29	-152.94	0.60	-0.56	0.47
3,843.00	25.41	186.110	3,573.13	-1,138.78	-156.67	-158.38	1.99	1.21	-3.74
3,937.00	23.83	185.240	3,658.58	-1,177.74	-160.55	-162.32	1.72	-1.68	-0.93
4,031.00	21.19	183.920	3,745.41	-1,213.61	-163.44	-165.27	2.86	-2.81	-1.40
4,125.00	18.20	188.310	3,833.91	-1,245.09	-166.73	-168.60	3.55	-3.18	4.67
4,219.00	14.77	191.480	3,924.03	-1,271.37	-171.24	-173.14	3.77	-3.65	3.37
4,314.00	11.87	192.440	4,016.47	-1,292.78	-175.75	-177.69	3.06	-3.05	1.01
4,408.00	8.44	189.630	4,108.98	-1,309.03	-178.99	-180.95	3.69	-3.65	-2.99
4,502.00	7.83	184.530	4,202.04	-1,322.21	-180.65	-182.63	1.00	-0.65	-5.43
4,597.00	7.12	197.010	4,296.24	-1,334.30	-182.88	-184.89	1.86	-0.75	13.14
4,691.00	5.54	200.090	4,389.66	-1,344.13	-186.15	-188.16	1.72	-1.68	3.28
4,786.00	5.01	187.430	4,484.26	-1,352.55	-188.26	-190.29	1.34	-0.56	-13.33
4,879.00	4.57	184.440	4,576.94	-1,360.27	-189.07	-191.11	0.54	-0.47	-3.22
4,973.00	1.58	188.050	4,670.79	-1,365.29	-189.54	-191.59	3.19	-3.18	3.84
5,067.00	1.85	185.760	4,764.75	-1,368.08	-189.87	-191.93	0.30	0.29	-2.44
5,162.00	1.93	175.570	4,859.70	-1,371.20	-189.90	-191.96	0.36	0.08	-10.73
5,257.00	2.20	183.210	4,954.64	-1,374.62	-189.88	-191.95	0.41	0.28	8.04

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Site:	CVR 5-63-32_33 Pad	MD Reference:	GL 4581' & KB 20' @ 4601.00ft (Savanna 802)
Well:	CVR 5-63-32-6457B2B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Casper District

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
5,351.00	1.93	168.010	5,048.58	-1,377.97	-189.66	-191.72	0.65	-0.29	-16.17	
5,446.00	1.67	218.370	5,143.53	-1,380.62	-190.18	-192.25	1.63	-0.27	53.01	
5,540.00	1.93	221.530	5,237.49	-1,382.88	-192.08	-194.16	0.30	0.28	3.36	
5,634.00	1.76	205.360	5,331.44	-1,385.36	-193.75	-195.83	0.58	-0.18	-17.20	
5,729.00	1.93	214.860	5,426.39	-1,388.00	-195.29	-197.37	0.37	0.18	10.00	
5,824.00	1.93	218.630	5,521.34	-1,390.56	-197.20	-199.29	0.13	0.00	3.97	
5,919.00	0.44	63.770	5,616.32	-1,391.65	-197.87	-199.96	2.46	-1.57	-163.01	
6,013.00	0.97	49.530	5,710.31	-1,390.97	-196.94	-199.03	0.59	0.56	-15.15	
6,108.00	0.70	54.100	5,805.30	-1,390.11	-195.86	-197.95	0.29	-0.28	4.81	
6,202.00	0.70	105.340	5,899.30	-1,389.92	-194.84	-196.93	0.64	0.00	54.51	
6,241.00	3.90	90.388	5,938.26	-1,390.00	-193.29	-195.37	8.28	8.20	-38.34	
Curve KOP										
6,297.00	8.53	88.640	5,993.92	-1,389.91	-187.23	-189.32	8.28	8.27	-3.12	
First SDI MWD Curve Survey										
6,391.00	18.47	84.250	6,085.21	-1,388.25	-165.39	-167.47	10.62	10.57	-4.67	
6,485.00	29.55	85.570	6,170.94	-1,384.96	-127.35	-129.42	11.80	11.79	1.40	
6,580.00	39.57	88.380	6,249.08	-1,382.28	-73.60	-75.68	10.68	10.55	2.96	
6,675.00	44.49	88.470	6,319.63	-1,380.54	-10.04	-12.11	5.18	5.18	0.09	
6,770.00	56.10	87.850	6,380.21	-1,378.16	62.88	60.81	12.23	12.22	-0.65	
6,865.00	71.49	89.170	6,422.04	-1,376.02	147.83	145.77	16.25	16.20	1.39	
6,938.00	84.59	91.110	6,437.13	-1,376.22	219.09	217.02	18.13	17.95	2.66	
Last SDI MWD Curve Survey										
7,000.00	89.44	93.445	6,440.36	-1,378.68	280.93	278.86	8.68	7.83	3.77	
Casing Point										
7,002.00	89.60	93.520	6,440.38	-1,378.81	282.93	280.86	8.68	7.83	3.75	
First SDI MWD Lateral Survey										
7,074.00	90.87	90.810	6,440.08	-1,381.52	354.87	352.79	4.16	1.76	-3.76	
7,168.00	91.04	91.300	6,438.51	-1,383.26	448.84	446.76	0.55	0.18	0.52	
7,262.00	91.68	91.600	6,436.28	-1,385.63	542.78	540.70	0.75	0.68	0.32	
7,356.00	92.28	92.240	6,433.04	-1,388.78	636.67	634.59	0.93	0.64	0.68	
7,451.00	92.42	91.940	6,429.14	-1,392.24	731.53	729.44	0.35	0.15	-0.32	
7,545.00	92.68	91.810	6,424.96	-1,395.31	825.39	823.29	0.31	0.28	-0.14	
7,640.00	92.55	91.230	6,420.62	-1,397.83	920.25	918.15	0.63	-0.14	-0.61	
7,735.00	92.62	91.580	6,416.34	-1,400.16	1,015.13	1,013.02	0.38	0.07	0.37	
7,829.00	91.21	90.390	6,413.20	-1,401.77	1,109.06	1,106.95	1.96	-1.50	-1.27	
7,923.00	91.81	90.730	6,410.72	-1,402.69	1,203.02	1,200.91	0.73	0.64	0.36	
8,017.00	91.37	90.220	6,408.11	-1,403.47	1,296.98	1,294.87	0.72	-0.47	-0.54	
8,111.00	90.67	89.980	6,406.44	-1,403.64	1,390.96	1,388.86	0.79	-0.74	-0.26	
8,205.00	90.40	89.630	6,405.56	-1,403.32	1,484.96	1,482.85	0.47	-0.29	-0.37	
8,299.00	91.01	89.810	6,404.40	-1,402.86	1,578.95	1,576.84	0.68	0.65	0.19	
8,393.00	90.40	89.890	6,403.25	-1,402.61	1,672.94	1,670.84	0.65	-0.65	0.09	
8,488.00	90.27	89.780	6,402.69	-1,402.34	1,767.94	1,765.83	0.18	-0.14	-0.12	
8,582.00	90.37	89.460	6,402.17	-1,401.71	1,861.94	1,859.83	0.36	0.11	-0.34	
8,676.00	91.48	89.750	6,400.65	-1,401.06	1,955.92	1,953.82	1.22	1.18	0.31	
8,769.00	91.04	90.020	6,398.61	-1,400.88	2,048.90	2,046.79	0.56	-0.47	0.29	

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Site:	CVR 5-63-32_33 Pad	MD Reference:	GL 4581' & KB 20' @ 4601.00ft (Savanna 802)
Well:	CVR 5-63-32-6457B2B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Casper District

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,863.00	91.61	90.340	6,396.43	-1,401.17	2,142.87	2,140.77	0.70	0.61	0.34
8,957.00	91.07	90.570	6,394.23	-1,401.92	2,236.84	2,234.74	0.62	-0.57	0.24
9,052.00	90.50	89.470	6,392.93	-1,401.95	2,331.83	2,329.72	1.30	-0.60	-1.16
9,147.00	90.03	89.540	6,392.49	-1,401.13	2,426.83	2,424.72	0.50	-0.49	0.07
9,241.00	89.56	89.420	6,392.83	-1,400.28	2,520.82	2,518.72	0.52	-0.50	-0.13
9,335.00	89.16	88.920	6,393.88	-1,398.92	2,614.81	2,612.70	0.68	-0.43	-0.53
9,429.00	90.84	88.760	6,393.88	-1,397.01	2,708.78	2,706.68	1.80	1.79	-0.17
9,524.00	91.61	88.990	6,391.85	-1,395.15	2,803.74	2,801.65	0.85	0.81	0.24
9,618.00	92.18	89.740	6,388.74	-1,394.11	2,897.68	2,895.59	1.00	0.61	0.80
9,712.00	92.62	89.720	6,384.80	-1,393.67	2,991.60	2,989.51	0.47	0.47	-0.02
9,806.00	91.64	89.860	6,381.31	-1,393.32	3,085.53	3,083.44	1.05	-1.04	0.15
9,900.00	91.91	90.220	6,378.40	-1,393.39	3,179.49	3,177.39	0.48	0.29	0.38
9,994.00	92.28	90.360	6,374.96	-1,393.86	3,273.42	3,271.33	0.42	0.39	0.15
10,088.00	91.74	90.560	6,371.66	-1,394.62	3,367.36	3,365.27	0.61	-0.57	0.21
10,182.00	92.18	90.430	6,368.45	-1,395.43	3,461.30	3,459.21	0.49	0.47	-0.14
10,276.00	91.64	91.540	6,365.32	-1,397.04	3,555.24	3,553.14	1.31	-0.57	1.18
10,371.00	90.20	91.830	6,363.79	-1,399.84	3,650.18	3,648.08	1.55	-1.52	0.31
10,462.00	89.33	91.270	6,364.16	-1,402.30	3,741.14	3,739.04	1.14	-0.96	-0.62
10,553.00	89.46	90.190	6,365.13	-1,403.46	3,832.13	3,830.02	1.20	0.14	-1.19
10,644.00	90.23	89.950	6,365.37	-1,403.57	3,923.13	3,921.02	0.89	0.85	-0.26
10,734.00	91.01	90.240	6,364.40	-1,403.72	4,013.12	4,011.01	0.92	0.87	0.32
10,825.00	88.99	89.450	6,364.40	-1,403.47	4,104.12	4,102.01	2.38	-2.22	-0.87
10,916.00	89.66	89.430	6,365.47	-1,402.58	4,195.11	4,193.00	0.74	0.74	-0.02
11,007.00	89.36	89.230	6,366.25	-1,401.52	4,286.10	4,283.99	0.40	-0.33	-0.22
11,099.00	90.03	89.460	6,366.74	-1,400.47	4,378.09	4,375.98	0.77	0.73	0.25
11,189.00	90.77	89.230	6,366.11	-1,399.44	4,468.08	4,465.97	0.86	0.82	-0.26
11,280.00	90.84	89.310	6,364.83	-1,398.28	4,559.06	4,556.96	0.12	0.08	0.09
11,371.00	91.61	88.470	6,362.89	-1,396.52	4,650.02	4,647.92	1.25	0.85	-0.92
11,462.00	91.24	89.180	6,360.62	-1,394.65	4,740.98	4,738.88	0.88	-0.41	0.78
11,553.00	91.78	89.130	6,358.22	-1,393.31	4,831.93	4,829.84	0.60	0.59	-0.05
11,645.00	91.21	90.360	6,355.82	-1,392.90	4,923.90	4,921.80	1.47	-0.62	1.34
11,736.00	91.81	90.320	6,353.43	-1,393.44	5,014.87	5,012.77	0.66	0.66	-0.04
11,827.00	90.17	91.210	6,351.85	-1,394.65	5,105.84	5,103.74	2.05	-1.80	0.98
11,918.00	90.10	91.250	6,351.64	-1,396.61	5,196.82	5,194.72	0.09	-0.08	0.04
12,010.00	89.63	88.730	6,351.86	-1,396.59	5,288.81	5,286.71	2.79	-0.51	-2.74
12,102.00	89.26	87.790	6,352.75	-1,393.80	5,380.76	5,378.67	1.10	-0.40	-1.02
12,193.00	89.13	88.150	6,354.03	-1,390.58	5,471.70	5,469.60	0.42	-0.14	0.40
12,284.00	88.73	88.820	6,355.73	-1,388.17	5,562.65	5,560.56	0.86	-0.44	0.74
12,375.00	90.07	89.040	6,356.68	-1,386.47	5,653.63	5,651.54	1.49	1.47	0.24
12,466.00	90.50	89.720	6,356.23	-1,385.49	5,744.62	5,742.53	0.88	0.47	0.75
12,557.00	90.97	89.560	6,355.06	-1,384.91	5,835.61	5,833.52	0.55	0.52	-0.18
12,649.00	90.30	89.690	6,354.04	-1,384.31	5,927.60	5,925.52	0.74	-0.73	0.14
12,740.00	88.56	89.170	6,354.94	-1,383.41	6,018.59	6,016.51	2.00	-1.91	-0.57

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well CVR 5-63-32-6457B2B
Project:	Weld County, CO NAD 83	TVD Reference:	GL 4581' & KB 20' @ 4601.00ft (Savanna 802)
Site:	CVR 5-63-32_33 Pad	MD Reference:	GL 4581' & KB 20' @ 4601.00ft (Savanna 802)
Well:	CVR 5-63-32-6457B2B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Casper District

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
12,832.00	90.77	89.600	6,355.48	-1,382.42	6,110.58	6,108.49	2.45	2.40	0.47
12,923.00	91.14	90.000	6,353.97	-1,382.10	6,201.56	6,199.48	0.60	0.41	0.44
13,014.00	91.27	90.110	6,352.05	-1,382.19	6,292.54	6,290.46	0.19	0.14	0.12
13,105.00	91.44	89.750	6,349.90	-1,382.08	6,383.52	6,381.43	0.44	0.19	-0.40
13,196.00	89.90	88.420	6,348.84	-1,380.63	6,474.49	6,472.41	2.24	-1.69	-1.46
13,287.00	89.53	88.020	6,349.29	-1,377.80	6,565.45	6,563.37	0.60	-0.41	-0.44
13,378.00	88.62	88.020	6,350.76	-1,374.66	6,656.38	6,654.31	1.00	-1.00	0.00
13,469.00	90.20	90.180	6,351.69	-1,373.23	6,747.36	6,745.29	2.94	1.74	2.37
13,561.00	90.91	90.480	6,350.80	-1,373.76	6,839.35	6,837.28	0.84	0.77	0.33
13,651.00	88.83	89.000	6,351.01	-1,373.35	6,929.34	6,927.27	2.84	-2.31	-1.64
13,743.00	89.80	90.820	6,352.11	-1,373.20	7,021.33	7,019.26	2.24	1.05	1.98
13,835.00	90.00	91.030	6,352.27	-1,374.69	7,113.32	7,111.25	0.32	0.22	0.23
13,927.00	89.36	90.700	6,352.78	-1,376.08	7,205.31	7,203.23	0.78	-0.70	-0.36
14,019.00	88.52	90.130	6,354.48	-1,376.74	7,297.29	7,295.21	1.10	-0.91	-0.62
14,111.00	89.83	90.900	6,355.81	-1,377.57	7,389.27	7,387.19	1.65	1.42	0.84
14,202.00	89.93	91.470	6,356.00	-1,379.45	7,480.25	7,478.17	0.64	0.11	0.63
14,294.00	90.17	91.440	6,355.92	-1,381.79	7,572.22	7,570.14	0.26	0.26	-0.03
14,386.00	90.44	90.900	6,355.43	-1,383.67	7,664.20	7,662.11	0.66	0.29	-0.59
14,478.00	90.60	91.050	6,354.59	-1,385.23	7,756.18	7,754.09	0.24	0.17	0.16
14,570.00	91.44	90.440	6,352.96	-1,386.43	7,848.16	7,846.07	1.13	0.91	-0.66
14,662.00	89.80	89.710	6,351.96	-1,386.55	7,940.15	7,938.06	1.95	-1.78	-0.79
14,754.00	89.77	89.190	6,352.31	-1,385.67	8,032.14	8,030.06	0.57	-0.03	-0.57
14,845.00	89.73	88.610	6,352.70	-1,383.92	8,123.13	8,121.04	0.64	-0.04	-0.64
14,938.00	89.83	88.810	6,353.06	-1,381.83	8,216.10	8,214.02	0.24	0.11	0.22
15,029.00	89.43	88.170	6,353.65	-1,379.43	8,307.07	8,304.99	0.83	-0.44	-0.70
15,121.00	89.33	87.470	6,354.64	-1,375.93	8,399.00	8,396.92	0.77	-0.11	-0.76
15,214.00	88.49	88.670	6,356.41	-1,372.80	8,491.92	8,489.85	1.57	-0.90	1.29
15,306.00	88.83	90.480	6,358.56	-1,372.11	8,583.89	8,581.82	2.00	0.37	1.97
15,398.00	88.76	90.230	6,360.50	-1,372.68	8,675.87	8,673.80	0.28	-0.08	-0.27
15,489.00	88.83	90.010	6,362.41	-1,372.87	8,766.85	8,764.78	0.25	0.08	-0.24
15,582.00	88.66	89.450	6,364.45	-1,372.44	8,859.83	8,857.76	0.63	-0.18	-0.60
15,674.00	87.89	89.280	6,367.22	-1,371.42	8,951.78	8,949.71	0.86	-0.84	-0.18
15,765.00	88.66	89.930	6,369.96	-1,370.79	9,042.73	9,040.66	1.11	0.85	0.71
15,857.00	88.46	90.510	6,372.27	-1,371.14	9,134.70	9,132.63	0.67	-0.22	0.63
15,951.00	88.26	90.140	6,374.96	-1,371.68	9,228.66	9,226.59	0.45	-0.21	-0.39
16,046.00	88.36	90.310	6,377.76	-1,372.05	9,323.62	9,321.55	0.21	0.11	0.18
16,140.00	89.16	90.510	6,379.80	-1,372.72	9,417.59	9,415.52	0.88	0.85	0.21
16,234.00	89.73	90.430	6,380.71	-1,373.49	9,511.59	9,509.51	0.61	0.61	-0.09
16,330.00	90.27	89.290	6,380.71	-1,373.26	9,607.58	9,605.51	1.31	0.56	-1.19
16,425.00	89.36	86.350	6,381.01	-1,369.65	9,702.50	9,700.44	3.24	-0.96	-3.09
16,520.00	89.60	85.760	6,381.88	-1,363.11	9,797.27	9,795.22	0.67	0.25	-0.62
16,533.00	89.87	85.930	6,381.94	-1,362.17	9,810.24	9,808.18	2.45	2.08	1.31
Last SDI MWD Survey									

Company:	Bill Barrett Corp.	Local Co-ordinate Reference:	Well CVR 5-63-32-6457B2B
Project:	Weld County, CO NAD 83	TVD Reference:	GL 4581' & KB 20' @ 4601.00ft (Savanna 802)
Site:	CVR 5-63-32_33 Pad	MD Reference:	GL 4581' & KB 20' @ 4601.00ft (Savanna 802)
Well:	CVR 5-63-32-6457B2B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Casper District

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
16,590.00	89.57	85.930	6,382.21	-1,358.12	9,867.10	9,865.05	0.53	-0.53	0.00
Projection to TD									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
800.00	800.00	0.00	0.00	Casing Assumed Vertical
877.00	877.00	0.10	0.21	First SDI MWD Survey
6,241.00	5,938.26	-1,390.00	-193.29	Curve KOP
6,297.00	5,993.92	-1,389.91	-187.23	First SDI MWD Curve Survey
6,938.00	6,437.13	-1,376.22	219.09	Last SDI MWD Curve Survey
7,000.00	6,440.36	-1,378.68	280.93	Casing Point
7,002.00	6,440.38	-1,378.81	282.93	First SDI MWD Lateral Survey
16,533.00	6,381.94	-1,362.17	9,810.24	Last SDI MWD Survey
16,590.00	6,382.21	-1,358.12	9,867.10	Projection to TD

Checked By: _____ Approved By: _____ Date: _____